

Appl. No. 10 520 571

Amdt. dated June 13, 2006

Reply to Office action mailed December 13, 2005

REMARKS/ARGUMENTS

Applicants respectfully request acknowledgment of the claim for priority and receipt of the priority documents which were filed in the PCT application. According to the Notice of Acceptance, the priority documents were received by the USPTO.

The abstract and the specification have been amended to delete the term "consisting" from the description of components (B-1) and (D). Claim 1 has been amended to delete "comprising" since the term is not necessary in the absence of the term "consisting". Paragraph [0045] of the published application states that other phosphate flame retardants may be included in (D). Applicant submit that the deletion of either "consisting" or "comprising" does not add any new matter to the specification or the claims.

Applicants submit that the deletion of the term "consisting" in the specification does not add any new matter or broaden the scope of the specification. New matter is new and substantive information which might change the invention. Deletion of the term does *not* add any new information to the specification. Moreover, Applicants note that the ordinary meaning of "consisting of" (e.g., "composed of" or "made up of") does not have the restrictive legal meaning given to the term when used in the claims of a U.S. patent application.

With regard to (D), the specification discloses that the composition of the present invention "may further contain conventional flame retardants, such as organic phosphoric acid ester" (paragraph [0045] of the published application). The use of the term "consisting" was not intended to have the restrictive meaning which is peculiar to U.S. patent claim construction practice in either the specification or the claims.

There is nothing in Applicants' specification that teaches that the monomer mixture of component (B-1) is or must be limited only to the monomers recited for (B-1.1) and (B-1.2) as part of the invention. The rubber modified vinyl-grafted copolymers of component (B), their properties, and the monomers used to form such graft copolymers are well known to one skilled in the art. What is conventional or well known to one of ordinary skill in the art need not be disclosed in detail. If a skilled artisan would have understood the inventor to be in possession of the claimed invention at the time of filing, even if every nuance of the claims is not explicitly described in the

Appl. No. 10 520 571

Amdt. dated June 13, 2006

Reply to Office action mailed December 13, 2005

specification, then the adequate description requirement is met. (See MPEP §2163). Applicants submit that one skilled in the art would have understood the Applicants to be in possession of the claimed invention from the specification.

The amendment removing the term "consisting" is for the purposes of clarifying what is inherently disclosed in the specification regarding well known rubber modified graft copolymers. Applicant submit that the deletion of the term "consisting" does not add any new matter to the specification or the claims.

Claims 5 and 6 directed to specific embodiments of the invention have been added. Basis for the new claims is in the Examples. No new matter has been added.

Status of the Claims

Claims 1-4 are pending and under consideration. Claims 5 and 6 are added by this Amendment.

Statement of the Rejections

Claims 1-4 stand rejected under 35 U.S.C. §112, first paragraph as failing to comply with the written description requirement. The Examiner has taken the position that deletion of the phrase "consisting of" is new matter.

Claims 1 - 4 stand rejected under 35 U.S.C. §103 as unpatentable over Shibuya et al. in view of Eckel et al. Shibuya et al. disclose flame retardant polycarbonate compositions containing, among other components, phosphate ester flame retardants. Eckel et al. disclose polycarbonate compositions in which a mixture monophosphorous compounds and oligomeric phosphorous compound are used to provide improved stress cracking resistance. The oligomeric phosphorous compounds are derived from diphenols such as resorcinol and hydroquinone which contain only one phenyl group and bisphenol A which contains two phenyl groups linked by an alkyl group. Oligomeric phosphate esters containing a biphenyl group are not disclosed by Eckel et al. The examples do not include bisphenol A as showing the alleged synergistic effect of improving stress cracking and bisphenol A is not included in the claims which only claim resorcinol and hydroquinone groups in the oligomeric phosphate compounds.

Appl. No. **10 520 571**
Amdt. dated June 13, 2006
Reply to Office action mailed December 13, 2005

The Examiner has taken the position that it would have been obvious to one skilled in the art to use monomeric and oligomeric phosphate esters in the compositions of Shibuya et al. in view of the teaching of Eckel et al. since the ratios are "customary" and "the combination yields synergistic effects".

Applicants' Traversal

Applicants traverse the rejections and respectfully request reconsideration in view of the following discussion.

With regard to the rejection under 35 U.S.C. §112, Applicants traverse the rejection for the reasons set forth previously. As stated previously, deletion of the term does *not* add any new information to the specification. Moreover, the ordinary meaning of "consisting of" (e.g., "composed of" or "made up of") does not have the restrictive legal meaning given to the term when used in the claims of a U.S. patent application. Applicants' specification describes the claimed subject matter in conformity with 35 U.S.C. §112.

The compositions of the present invention have a good balance of physical properties such as flame retardancy, impact strength, heat resistance, thermal stability, processability and appearance. Therefore, the resin compositions according to the present invention are particularly well suited for use in heat-emitting appliances such as personal computers, facsimiles, and the like. Applicants' claimed compositions show improved properties compared with similar compositions in which the oligomeric phosphate esters contain bisphenol A groups instead of the biphenyl groups of Formula (II).

Eckel et al. do not disclose oligomeric phosphate esters containing a biphenol group as in Applicants' (D-2) of Formula II so there is no motivation to select the biphenol containing phosphate ester oligomers of Shibuya et al.

Shibuya et al. disclose that the monomeric and oligomeric phosphate esters disclosed therein "can be used individually or in combination" (col. 15, lines 32-33) without any disclosure of Applicants' specific phosphate esters individually or any mixtures of phosphate esters. The oligomeric phosphate esters which are specifically disclosed contain monophenyl linking groups

Appl. No. 10 520 571

Amdt. dated June 13, 2006

Reply to Office action mailed December 13, 2005

or bisphenol A type linking groups. Although biphenyl groups are listed among numerous other alternatives, there is no disclosure of any specific biphenyl phosphate esters, either monomeric or oligomeric. The phosphate esters specifically disclosed contain bisphenol A type groups (see the formulae in col. 15 and 16 after line 35). There is nothing in the reference that teaches or suggests any advantages or benefits from using a monomeric phosphate ester in combination with an oligomeric phosphate ester.

Eckel et al. do not disclose Applicants' component (D-2) which contains a biphenyl group, i.e., two phenyl groups linked as shown in Formula (II). The oligomeric phosphate esters of Eckel et al. are generally disclosed as "derived from diphenols such as, for example, bisphenol A, resorcinol or hydroquinone" (col. 8, lines 37-40). Resorcinol and hydroquinone contain only one phenyl group. Bisphenol A contains two phenyl groups but the phenyl groups are linked by an alkyl group whereas the phenyl groups of Formula (II) of (D-2) are directly linked. It is noted that Eckel et al. do not have any examples of the bisphenol A phosphate ester and the claims are limited to oligomeric phosphate esters containing resorcinol and hydroquinone residue.

Applicants submit that the Examiner has not established a *prima facie* case of obviousness because there is nothing in Shibuya et al. or Eckel et al. which would motivate one skilled in the art to combine monomeric phosphate ester with the oligomeric biphenyl phosphate ester of Formula (II). In view of the large number of oligomeric phosphate esters which would fall within the broad disclosures of the references, Applicants submit that the only motivation would be "obvious to try" rationale which does not meet the requirement for a *prima facie* case of obviousness.

Even if the references were combined as proposed by the Examiner, the oligomeric phosphate esters, one skilled in the art would *not* result in Applicants' claimed compositions. Applicants submit that one skilled in the art would select the phosphate esters identified by Eckel et al. as providing the improved properties, i.e., esters containing monophenyl linking groups or polyphenyl linking groups which are linked by alkyl groups, i.e., bisphenol A linking groups.

Appl. No. 10 520 571

Amdt. dated June 13, 2006

Reply to Office action mailed December 13, 2005

Shibuya et al. do not disclose the monomeric phosphate ester of claim 5 which contains a naphthyl group.

In claim 5, the monomeric phosphate ester contains at least one naphthyl group when x is 1 or more. Such monomeric phosphate esters are not specifically disclosed by the primary reference, Shibuya et al. Applicants submit that the very broad disclosure in Shibuya et al. would not motivate one skilled in the art to use Applicants' monomeric naphthyl phosphate ester either individually or in a mixture. Applicants submit that it would not be obvious to use any phosphate esters not disclosed by the primary reference. As discussed previously, "obvious to try" does not meet the requirement for a *prima facie* case of obviousness.

Applicants have shown that the use of oligomeric phosphate esters containing biphenyl groups provide improved properties compared with phosphate esters derived from bisphenol A.

Both Shibuya et al. and Eckel et al. disclose the use of oligomeric phosphate esters derived from bisphenol A. Eckel et al. do not use bisphenol A in the examples to show improved stress cracking resistance. Furthermore, there is no mention of improvement in other physical properties. Applicants' claimed compositions show improved heat resistance compared with compositions using oligomeric phosphate esters derived from bisphenol A. As shown in Table 2, the resin compositions according to the present invention employing a phosphorous mixture of the monomeric phosphoric acid ester and the oligomeric phosphoric acid ester show high impact strength as well as good flame retardancy and good heat resistance, compared to those employing bisphenol-A type phosphoric acid ester (D-3).

Though the oligomeric phosphoric acid ester (D-2) in Applicants' Examples has lower molecular weight than bisphenol-A type phosphoric acid ester of the Comparative Examples, the resin compositions of the present invention show higher heat resistance (VSTE) and better flame retardancy than Comparative Examples. Further, in the Comparative Examples 1-4, the impact strength of the resin composition was decreased depending on the increase of the amount of the bisphenol-A type phosphoric acid ester. On the other hand, in the Example 1-4, the impact strength of the composition was high regardless of the relative amount of the oligomeric phosphate ester.

Appl. No. 10 520 571

Amdt. dated June 13, 2006

Reply to Office action mailed December 13, 2005

The references cited in the rejection do not provide a sufficient basis for a reasonable expectation of success.

Shibuya et al. disclose that mixtures of the disclosed phosphate esters can be used individually or in a mixture. Eckel et al. disclose that certain mixtures of monomeric and oligomeric phosphate esters produce improved stress cracking resistance. However, Applicants' component (D-2) containing a biphenyl group is not disclosed. It is noted that the examples of Eckel et al. which are used to demonstrate the improved results do not include bisphenol A phosphate ester. The only phosphate esters used contain monophenyl residue as the aromatic linking groups. Applicant submit that Shibuya et al.'s failure to disclose any improvement from mixtures of phosphate esters and the lack of disclosure of an oligomeric biphenyl phosphate ester in Eckel et al. support Applicants' position that there is insufficient evidence to support a reasonable expectation of success in achieving the improved results disclosed by Eckel et al. by using the phosphate esters therein in the compositions of Shibuya et al.

The dependent claims are patentable for the reasons set forth for the independent claims

As discussed previously, both Shibuya et al. and Eckel et al. specifically disclose monophenyl linking groups or bisphenol A type linking groups. Since the compositions of the dependent claims include the oligomeric biphenyl phosphate esters of Formula (II), Applicant submit that the dependent claims are patentable for the reasons previously set forth for the independent claims.

With regard to claims 5 and 6, the monomeric phosphate ester containing a naphthyl substituent is not disclosed by Shibuya et al. Therefore, one skilled in the art would not have a reasonable expectation of success in using a phosphate ester which is not even disclosed in the primary reference.

Appl. No. 10 520 571

Amtdt. dated June 13, 2006

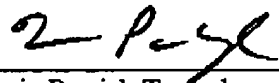
Reply to Office action mailed December 13, 2005

Applicants submit that a review of the prior art of record as a whole shows that the claims in the present application meet the requirements for patentability. It is respectfully requested that the Examiner reconsider his rejections of the claims and allow claims 1 to 6.

Respectfully submitted,

LIM ET AL

BY



Maria Parrish Tungol
Registration No. 31,720
Telephone: (571) 275-1111